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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/478,370	02/16/2000	KIICHI HAMA	7363.0010	1598

7590

08/07/2002

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EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 08/07/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

MS

Office Action Summary

Application No.

09/478,370

Applicant(s)

HAMA ET AL.

Examiner

Luz L. Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-167 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-164 and 167 is/are allowed.
- 6) ☒ Claim(s) 165 and 166 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 165 and 166 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 165 recites the limitation "said antenna" in line 17. There is insufficient antecedent basis for this limitation in the claim.

Claim 166 recites at lines 7-8, "an exhaust pump for exhausting and setting at least one of said container portions to a vacuum;"; and at lines 23-24, "an exhaust pump for exhausting and setting at least one of said process container portion and said auxiliary container portion to a vacuum.". It is not clear how these two limitations are different from each other since the claimed container portions of the first limitation seems to be the process container portion and the auxiliary container portion. Therefore, the recitation of one limitation makes the recitation of the other limitation repetitive.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 166 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cuomo et al., U.S. Patent 5,280,154 in view of Ogle, U.S. Patent 4,948,458.

Cuomo et al. shows the invention substantially as claimed including an apparatus 10 for processing a process region of a substrate 40, using a plasma, the apparatus comprising: a container substantially formed of a conductive material (see col. 4, lines 3-5); a window partition plate 26 supported on an inner surface of the container, made of dielectric, and defining an air-tight process container portion 12 and an air-tight auxiliary container portion 48,50 (see col. 4, lines 5-9); a work table 36 arranged in the process container portion and having a support face facing the window plate, the substrate being mountable on the support face with the process region facing the window plate (see figure 1); a main supply 30 for supplying a process gas between the window plate and the substrate mounted on the support face, at least part of the process gas being transformable into the plasma (see col. 4, lines 9-11); a coil 14 for

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generating an electromagnetic field between the window plate and the substrate mounted on the support face to induce generation of the plasma arranged in the auxiliary container portion and facing the window plate (see figure 1); a power supply 60 for applying a high frequency voltage to the coil; and valves for controlling the admission of the gas into the chamber and valves and exhaust pumps for purging the gas from the chamber and for drawing a vacuum inside the chamber (see col. 3, lines 22-24, and col. 4, lines 9-18). It is inherent that the above mentioned valves and pumps are pressure controllers that are used for controlling the pressure in the process container at a predetermined or desired value (see col. 5, lines 13-16). Also, it would be inherent that since the pressure in the process container can be controlled to a desired pressure, a pressure difference between the pressure in the process container and the pressure in the auxiliary container can be controlled to be lower or higher or the same as a predetermined value.

Cuomo et al. does not expressly disclose that the coil is a planar spiral coil. Ogle discloses a plasma processing apparatus that uses a planar spiral coil 20 (see col. 4, lines 31-35, and figs. 1-3) in order to generate highly uniform planar plasmas over very wide pressure ranges (see col. 3, lines 3-18 and col. 6, lines 39-49). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Cuomo et al. as to comprise a planar spiral coil, in order to optimize the apparatus, since in such way highly uniform planar plasmas can be generated. Moreover, with respect to the planar spiral coil having a quadrilateral outer configuration, changes in shape are obvious absent

persuasive evidence that the particular configuration is significant (In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)).

Allowable Subject Matter

Claims 1-164 and 167 are allowed.

Claim 165 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Response to Arguments

Applicant's arguments filed on 06/04/02 have been fully considered but they are not persuasive with respect to newly added independent claim 166. Newly added claim 166, does not claim an exhaust pump connected to the auxiliary container, as argued by the applicant in the remarks of the amendment (page 10, lines 18-20). Instead, it only requires that the exhaust pump be connected to either one of the process container or the auxiliary container. Cuomo et al., discloses the use of an exhaust pump for exhausting the process container portion, therefore, the rejection in this office action is proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 703-305-4545. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


LLAM
August 5, 2002


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700